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AUTHOR Saunders, Nancy G.; Batson, Ted
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ABSTRACT

The purpose of this study was to explore the effectiveness of cooperative learning strategies in promoting the affective and cognitive growth of adult learners by describing and analyzing student and employer responses to a graduate level teacher education program. The Master of Education program at Indiana Wesleyan University, Marion, Indiana was designed for teachers seeking an advanced degree with a focus on curriculum and instruction. Courses were offered to cohorts at off-campus locations around the state as daylong Saturday workshops. The primary instructional design was student-centered, using cooperative and interactive learning strategies for students in groups of two or three. Evidence was collected from 740 graduates of the program and 56 of their employers over a 2-year period. Fifty current participants were also interviewed in focus groups. Responses to the graduate and employer surveys indicated that cognitive growth did occur for graduates of the program. Students reported growth in their ability to demonstrate instructional effectiveness, manage classroom learning, and be a more reflective practitioner. Administrators reported employees' growth in their abilities to use varied resources, methods and technology, and teaching skills. Responses of both graduates and administrators support the conclusion that cooperative strategies in this program contributed to cognitive and affective growth. (Contains 28 references.) (SLD)

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Cooperative Learning Strategies in Graduate Education

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By

Dr. Nancy G. Saunders
and
Dr. Ted Batson

Graduate Studies in Education
Indiana Wesleyan University
Marion, Indiana

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Introduction

Cooperative learning, the grouping and pairing of students for the purpose of achieving an academic goal, has been widely researched and advocated throughout the professional literature. The term "cooperative learning," also known as collaborative, team, peer, or group learning, refers to an instructional method in which students at differing performance levels work together in small groups toward a common goal. Each student is responsible for one another's learning as well as his or her own. The success of one student both depends upon group efforts and enables other group members to be successful.

Supporters of cooperative learning claim that the active exchange of ideas within small groups increases interest among group members and promotes individual cognitive and affective growth. According to Johnson and Johnson (1994) there is persuasive evidence that members of cooperative learning groups achieve at higher levels of thought and retain information longer than students working as individuals. The shared learning allows group members to engage in active discussion, take responsibility for their own learning, and develop broad cognitive and affective skills (Totten, Sills, Digby and Russ, 1991). The primary purpose for incorporating cooperative learning strategies in educational settings is to involve students in academic work, thereby enhancing their cognitive and affective growth.

Although these advantages are clearly supported by research (Johnson and Johnson, 1993a), most of the research studies have studied cooperative learning in the context of P-12 schools. At the post-secondary and graduate levels, comparatively little research has been done. An intent of this study was to contribute to the field of research

investigating the effectiveness of cooperative learning strategies in promoting the affective and cognitive growth of the adult learner.

The purpose of this study was to explore the effectiveness of cooperative learning strategies in promoting the affective and cognitive growth of adult learners by describing and analyzing student and employer responses to a graduate level teacher education program. This Master of Education program was designed to maximize students' cognitive and affective growth through their involvement in cooperative learning strategies. Studies have shown that cooperative learning strategies enhance student satisfaction with the learning experience and promote academic and social growth (MIS Quarterly, 1994). It was intended that this study would help to clarify the effectiveness of cooperative learning strategies in promoting adult learners' growth.

Theoretical Framework
Review of Literature

Three theoretical perspectives have guided research on cooperative learning: social interdependence theory, cognitive development theory, and behavioral learning theory. The social interdependence theory is rooted in the work of Kurt Lewin and Morton Deutsch from the mid-1900s. This theory's primary assumption is that the way social interdependence is structured determines how individuals interact with one another. This interaction determines the outcomes. Positive interdependence creates cooperation, negative interdependence creates opposition, and no interdependence creates isolation.

The cognitive development theory is rooted in the work of Piaget and Vygotsky. An assumption of this theory is that, when individuals cooperate, socio-cognitive conflict occurs that creates cognitive disequilibrium. This disequilibrium stimulates changes in perspective and cognitive development.

Behavioral learning theory has its roots in the works of Skinner, Bandura, and Slavin. This theory focuses on the impact of group contingencies on learning. Its primary assumption is that actions followed by extrinsic rewards will be repeated.

Based on this theoretical foundation, research on the effectiveness of cooperative learning strategies has focused on three educational arenas: the P-12 school setting, undergraduate education, and graduate or adult education. The greatest number of researchers have invested their efforts in studying cooperative learning strategies the P-12 school setting. In this setting, the primary research team of Johnson and Johnson (1994) has developed a set of conditions under which cooperative learning strategies are most productive:

1. Clearly perceived positive interdependence;
2. Considerable face-to-face interaction;
3. Clearly perceived individual accountability and personal responsibility to achieve the group's goals;
4. Frequent use of the relevant interpersonal and small group skills;
5. Frequent and regular group processing of current functioning to improve the group's future effectiveness.

A similar set of guidelines has been developed by Billson and Tiberius (1994), from their work with college students. Billson and Tiberius concluded that, for college

students to benefit from cooperative learning strategies, the following guidelines must be established:

Develop mutual respect: Communication has both content and relational components. Learning about each other encourages trust and tolerance, improves communication, and enhances learning (Chickering and Gamson, 1991).

Share responsibility and commitment to group goals: The shift from passive to active learner depends on the student's willingness to accept shared responsibility for his or her own learning (Johnson and Johnson, 1993b).

Encourage effective communication and feedback: Engaging the "competent, decent" but detached student requires the cross-fertilization of ideas and contrasting beliefs, as well as ongoing feedback, that can only come from group interaction (Elbow, 1986, p. 14).

Support cooperation: Because of the well-documented negative effect of anxiety on performance (Kohn, 1986; Johnson, Johnson, and Maruyama, 1983), classroom interaction must be designed so that students gain by helping one another, rather than by beating one another.

Develop security and trust: Student participation, performance, and evaluation of teachers are higher when the classroom is safe (Jones, 1989). Cooperation can not occur in a climate of threat, anxiety and fear.

These guidelines have been applied and studied in the post-secondary educational setting. A meta-analysis of 120 studies using college students as subjects was conducted by Johnson and Johnson (1993b). These studies compared the relative efficacy of cooperative, competitive, and individualistic learning on individual achievement.

Through this analysis Johnson and Johnson found that cooperative learning strategies promoted higher individual achievement than did competitive or individualistic learning in the college setting. These results held for verbal tasks, mathematical tasks and procedural tasks. The research on achievement also found cooperation to promote greater intrinsic motivation to learn, more frequent use of cognitive processes (networking, metacognition, reconceptualization, cognitive elaboration, and higher-level reasoning) and greater long-term maintenance of the skills learned.

Few researchers have investigated the effectiveness of cooperative learning strategies with adult populations. A number of prominent adult educators, such as Houle (1996) and Knowles (1990) have discussed the relationship between adult learner characteristics and cooperative learning environments. Other adult educators, such as Imel (1995), Maher and Tetreault (1994), and Stein (1998), have discussed the importance of appropriate learning climates for adult learners.

Brookfield (in Merriam and Cafarella, 1991) has argued for cooperative learning as a means to increase adult students' critical thinking skills. Research by Millis and Cotell (1998) supported Brookfield's claim, and also found that adult students' content comprehension and depth of knowledge increased when cooperative learning strategies were employed.

Several researchers have focused on gender-related issues in adult education. Magolda (1992) and Gilligan (1982) have both concluded women learn more effectively in a cooperative, rather than a competitive, climate.

Researchers have focused on the effectiveness of cooperative learning strategies in the P-12 school setting, in undergraduate education, and in adult education. The

purpose of this study was to explore the effectiveness of cooperative learning strategies in promoting the affective and cognitive growth of adult learners in an adult education setting.

Study Setting and Design

The setting for this study was the non-traditional Master of Education program of Indiana Wesleyan University, Marion, Indiana. This M.Ed. program was designed for experienced classroom teachers seeking an advanced degree with a focus on curriculum and instruction. This eighteen-month degree program was thirty-six hours in length, with a core of thirty hours and six elective hours. Courses were offered to cohorts at off-campus locations around the state as daylong Saturday workshops. Cohorts remained together for the length of the program.

The primary instructional design of this program was student-centered and used cooperative and interactive learning strategies. These strategies required grouping cohort members in twos and threes for short- and long-term projects, discussions, and assignments. Strategy examples included think-pair-share, the three-step interview, and the jigsaw technique.

Assessment strategies reflected the intent of the cooperative learning strategies used, and included both group and individual assessment approaches. Assessment examples included portfolio development, self-reflective assessment, peer interviews, and individual curriculum development projects.

The cohort group was an essential component to the success of the instructional design of this program. Research has shown that, for the effective use of cooperative

learning strategies, the learning context must foster mutual respect, shared responsibility, effective communication, and cooperative attitudes, and provide participants with a sense of security. The cohort group ideally provided a safe climate in which students were willing to share experiences and expertise, and to disagree with other viewpoints. Research findings supported that, in this environment, participation levels and class attendance tended to be high, and self-consciousness, apathy and boredom tended to be low (Billson and Tiberius, 1994).

In this study setting, the individual instructors were initially responsible for encouraging in the cohort a sense of security and trust. For cooperative learning strategies to be productive, work groups must develop positive interdependence (Johnson and Johnson, 1993a). Instructors for the program's introductory course were responsible for teaching cohort members to promote each other's learning, to hold each other accountable, to appropriately use interpersonal and small group skills, and to continually process as a group how effectively members were working together. Growing in proficiency in these work group skills was deemed essential for the cooperative learning strategies to become truly effective.

This study was designed and conducted to explore the effectiveness of cooperative learning strategies in promoting the affective and cognitive growth of the adult learner in a non-traditional M.Ed. program. Evidence was collected from graduates of the M.Ed. program and their employers over a two-year period (1997-1999). Fifty current M.Ed. candidates were also interviewed in three focus group settings.

Within six weeks of graduation, M.Ed. graduates were mailed a questionnaire that requested their responses to the M. Ed. program's design and delivery. Responses to this "Graduation Survey" were collected and collated from 740 graduates. This evidence was then analyzed for patterns and insights that could be used for program improvement.

In the spring of 1999, focus group interviews were conducted with three cohorts at three different locations around the state. These interviews were conducted to gain a different perspective on the program's design and delivery, and to elaborate on the survey findings. The focus group interview questions were the same fourteen questions as on the "Graduation Survey." As members of the focus groups were not graduates of the program, the interviews provided a different view of the issues of program design and delivery.

Also surveyed were the employers of the M.Ed. graduates. The employers of those graduates who granted permission received an "Administrator Survey." This survey asked several demographic questions. It also requested that the employer rate the M.Ed. graduate's performance in his or her P-12 school setting before entering and after completing the program. Fifty-six "Administrator Surveys" were returned, collated, and analyzed.

Four research questions directed this study:

- *In what ways did this M.Ed. program's learning experiences meet the needs of the adult learner?*
- *In what ways did the student-centered design of this M.Ed. program's learning experiences meet learner needs?*

- *In what ways did this M.Ed. program's learning experiences enhance affective growth?*
- *In what ways did this M.Ed. program's learning experiences enhance cognitive growth?*

These questions directed the development of this study. They were also reflected in survey questions on the Graduation Survey sent to program graduates and the Administrator Survey sent to their employers. These surveys were developed to provide evidence of student and employer responses to a graduate level teacher education program and to explore the effectiveness of cooperative learning strategies in promoting affective and cognitive growth in this M.Ed. program's adult learners.

Findings

Focus Group Interviews: Sample Responses

Questions that directed the focus group interviews were taken directly from the "Graduation Survey."

Questions regarding adult learner needs:

Was the 8AM to 5PM workshop time convenient?

Was the location accessible?

Was workshop time used effectively?

- The best part of the program was its convenience. Without that, I couldn't have gotten my masters.
- I'll say one thing. IWU made my masters degrees accessible. They did everything they could to make it possible for me.
- You know, with my work and my family obligations there was no way I could have done it without school coming to me.

Questions regarding the student-centered design of the program:

How has the workshop format enhanced your learning?

Has the cohort size been appropriate?

How have the cooperative activities enhanced your learning?

- I loved going through the program with the same people. They became my family. I felt very secure with them and they helped me grow.

- It would have been okay if one guy wasn't in our group. He was so negative. Really destructive. And the professors didn't control him. I think he kind of ruined it for us all.
- The group work was great. I was pretty scared going back to school after 20 years. The group work gave me confidence. I learned so much from others. And I learned to contribute, too.

Questions regarding student affective growth through the program:

In what ways have you grown in self-confidence as a teacher?

How have you gained satisfaction from your M. Ed. class work?

In what ways has your interest in lifelong learning been encouraged?

- I think the small group work helped my self-confidence in every part of my life. You see, the small group work and my cohort - they are places where you can succeed, where you are appreciated for your strengths and not made fun of for your weaknesses. My cohort has given me confidence to try.
- Now I'm really energized to learn. I have started to read all sorts of interesting stuff. And not just for school, but for life.
- In this program I have learned that I <u>can</u> learn and that learning is fun! Of course, I always tell my kids that, but now I believe it!

Questions regarding student cognitive growth through the program:

In what ways has the M.Ed. program enabled you to demonstrate greater instructional effectiveness?

To more effectively manage classroom learning?

To become a more reflective practitioner?

- The M.Ed. program has helped me in so many ways. I feel much more competent as a teacher. I have learned so many new skills and strategies. I think most importantly, I have learned to think about my work and change what I do to help my students learn.
- I have learned so much from my cohort. Every Saturday we share what worked and didn't work in our classrooms that week. After eighteen months of sharing like that, it really makes a difference!
- There is so much variety in teaching. Because of working with other teachers in my cohort, I have a huge toolbox of methods and ideas to use in my classroom. I have also learned by watching and listening to them how to think about how I'm teaching and the choices I'm making. I feel more in control of my teaching because of that.

Findings
Graduation Survey (N: 740)

Your responses to these questions will help us evaluate how well the M.Ed. program has met your needs and expectations We also want to better understand the value of your graduate learning experiences. Thank you for your valued input.

Please circle the answer that best represent your response to the program: (Strongly Agree [SA], Agree [A], Disagreed [D], and Strongly Disagree [SD].

	SD	D	A	SA
The 8AM - 5 PM Saturday meeting time was convenient.	0%	2%	27%	71%
The location of your M.Ed. class was accessible.	0%	3%	16%	81%
Your cohort size was appropriate to the M.Ed. curriculum.	5%	14%	16%	65%
The Saturday 8AM-5PM workshop format of the program enhanced my learning	0%	2%	31%	67%
The dialogue and collaboration with fellow candidates enhanced my learning.	0%	0%	12%	88%
The M.Ed. faculty effectively used workshop time.	1%	7%	54%	38%
The M.Ed. program has increased my self-confidence as a teacher.	0%	3%	30%	67%
I have gained personal satisfaction and growth through the M.Ed. program.	0%	0%	20%	80%
This program has strengthened my desire for lifelong learning.	0%	3%	30%	67%
The M.Ed. coursework enabled me to grow professionally.	0%	1%	13%	86%
The M.Ed. enabled me to demonstrate greater instructional effectiveness.	0%	0%	50%	50%
The M.Ed. enabled me to more effectively manage classroom learning.	0%	8%	48%	44%
The M.Ed. enabled me to become a more reflective practitioner.	0%	4%	58%	38%
The M.Ed. enabled me to build professional networks.	0%	4%	64%	32%

Findings
Administrator Survey (N: 56)

How long has this graduate been employed in this school corporation?
MEAN: 7.5 years

How long has this graduate been employed under your supervision?
MEAN: 4.89 years

Was this graduate employed under your supervision before completing the M.Ed.?
YES: 74.5% **NO: 25.5%**

How would you rate the IWU graduate on each of these statements, before and after completing the M.Ed. program?
Use a 1-5 scale, with 5 being high.

	MEAN:		
	Before	**After**	**Change**
*1. Professional knowledge, dispositions, and skills	3.80	4.50	.70
*2. Ability to critically analyze and use research methods and knowledge.	3.63	4.28	.65
*3. Ability to improve practice in the classroom and schools.	3.73	4.52	.79
*4. Leadership effectiveness	3.57	4.31	.74
*5. Knowledge and skill in teaching diverse learning styles and abilities.	3.66	4.50	.84
*6. Knowledge and skill in teaching students from diverse cultural backgrounds.	3.83	4.20	.37
*7. Knowledge and skill in planning, teaching, and assessing lessons.	3.93	4.58	.65
*8. Knowledge and ability to use varied resources, methods, and technology.	3.70	4.56	.86
*9. Integrity and honesty.	4.75	4.85	.10
*10. Teaching and confidence	4.07	4.72	.65

*T-tests indicate a significant difference ($p<.05$) between "before" and "after" scores.

Discussion

The purpose of this study was to explore the effectiveness of cooperative learning strategies in promoting the affective and cognitive growth of adult learners by describing and analyzing student and employer responses to a graduate level teacher education program. This Master of Education program was designed to maximize students' cognitive and affective growth through their involvement in cooperative learning strategies. Studies have shown that cooperative learning strategies enhance student satisfaction with the learning experience and promote academic and social growth (MIS Quarterly, 1994). It was intended that this study would help to clarify the effectiveness of cooperative learning strategies in promoting adult learners' growth.

Several contextual factors influenced the impact of cooperative learning strategies in this graduate education setting. Two of the questions that directed this study focused on the learning environment:

- *In what ways did this M.Ed. program's learning experiences meet the needs of the adult learner?*
- *In what ways did the student-centered design of this M.Ed. program's learning experiences meet learner needs?*

As the target population for the development of the non-traditional Masters of Education program in this study, adult learners brought to the classroom a set of unique characteristics. In her foundational work for this program, Tweedell (1999) identified adult learner characteristics that were supported by this non-traditional format:

- *Adults are motivated to learn and have acquired self-discipline (Knowles, 1980).*

The condensed workshop format and eighteen-month commitment of this M.Ed. program required high levels of learner motivation and self-discipline. When asked if the workshop format and meeting times were convenient, 71 percent of Graduation Survey respondents strongly agreed and 27 percent agreed. Although demanding, the workshop format and schedule of this program were accessible, and students were motivated to develop the self-discipline needed to complete the program. As one student stated, "There was no way I could have gone back to the local university, with my family and work obligations. Only this kind of program would have worked for me. Close to home and not in the evening. It took a lot of self-discipline, but I have that. What I don't have is time."

- *Adults desire relevance and learn best when personally involved (Merriam and Cafarella, 1991).*

The program's cohort format and reliance on cooperative learning strategies demanded high personal involvement and provided the opportunity for increased relevance. The theory-to-practice focus of the M.Ed. program required that individual and cooperative learning activities and assignments relate directly to the candidate's P-12 school setting. Student comments included statements such as "Group work forced me to be involved. It was great for me," and "Every project, every assignment in class I applied to my fourth grade classroom. A very relevant program."

- *Adults have insights of their own and broad life experience (Mezirow, 1991).*

Cooperative learning strategies require that all students share personal insights and experiences. Course assignments were designed to build on shared understandings and candidates' professional experience. Respondents reported professional growth through M.Ed. coursework (86 percent strongly agreed) and comments supported this response rate. "My studies have affirmed my own thoughts, my own perceptions. I have grown in confidence, both professionally and personally. I believe my cohort and work groups enabled my growth."

- *Adults have developed skill in independent learning and can direct their learning to fill in gaps of their knowledge (Houle, 1996).*

The program design under study required high levels of self-directed learning. The cohort and cooperative learning groups provided in-class interpersonal and intellectual support for students. Out-of-class assignments were designed to require 15 to 20 hours of study time. The program's demanding study schedule required well-developed, independent learning skills. As one student stated, "From class to class, we kept each other going. I have always been self-motivated and I got my work done on time. But it took all I had to keep me on track."

Students built learning networks to cope with the course load. Ninety-six percent of Graduation Survey respondents agreed the M.Ed. program enabled them to build professional networks. One student said, "I just hustled around my cohort and we built ourselves a network. I'll bet I'll use my network for years."

The most positive student responses on the Graduation Survey related to questions regarding the program's attempts to meet the needs of the adult learner.

Accessible time frame and location were critical program components that, in many cases, allowed students to acquire a graduate degree. The growth in professionalism and the opportunity to build professional networks were also important to the adult learner. Survey responses indicated that the learner's need for significance and desire for professional growth were met through this degree program, and that group work provided a setting in which both academic and social skills were developed.

A less positive response from study participants concerned M.Ed. faculty's effective use of workshop time. Although 92 percent of Graduation Survey respondents agreed that workshop time was used effectively, only 38 percent agreed strongly. Given the overall high ratings on this survey, the 38 percent "strongly agreed" response was relatively low, indicating some dissatisfaction with the use of class time. In this program, working professionals were attending class from 8AM to 5PM on Saturdays for eighteen months. This group of motivated adults expected their time to be used wisely and efficiently. One student said, "It really burned me when my professor was disorganized and wasted my time. I don't waste my students' time. I don't want my time wasted either." Expectations of class time use were unambiguously communicated to course instructors through program materials. Apparently, some instructors needed training on how to interpret program materials and how to effectively structure group work and instructional activities to gain the most benefit from the eight-hour workshop format.

Not all students felt cooperative group work a good use of their time. As one student commented, "I can get my work done more efficiently by myself." Other students did not understand the intellectual or social value of group work: "Why all this group stuff? I prefer my own opinion. I prefer keeping my efforts to myself. What's the

point of talking? Just tell me what to do, and I'll do it." Clearly, supporting instructional strategies with research findings and their educational rationale would be helpful to adult learners who are themselves professional educators.

Another dissatisfaction with group work centered on students' anxiety over assessment. It was important for students to understand clearly how their work would be assessed. Because individual accountability was the key to ensuring that all group members were strengthened by learning cooperatively, assessments were designed and administered to measure both individual growth and work group productivity. Instructors were responsible to address assessment concerns and balance assessment procedures. Several interview responses reflected this student's concern: "I liked group work. But, until I was convinced I would be judged for my contribution to the group, I was quite unhappy with it. I am a hard worker. I wanted credit for my work and I didn't want any loafers benefiting from my conscientiousness."

A second contextual factor that influenced the impact of cooperative learning strategies in this graduate education setting was the program's student-centered design. Another question of this study was directed to understanding the impact of this learning environment:

- *In what ways did the student-centered design of this M.Ed. program's learning experiences meet learner needs?*

This M.Ed. program was designed to be student-centered. For example, understanding that anxiety inhibits learning, and positive, supportive relationships enhance learning (Billson and Tiberius, 1994), students were assigned to a single cohort

for the eighteen month program. Knowing the M.Ed. clientele was approximately 75 percent women (Tweedell, 1999), interactional and relational (Gilligan, 1982; Magolda, 1992) learning activities were developed. Cooperative learning strategies were used to provide a setting where students could construct and share mental models, receive interpersonal feedback, and be held accountable by peers for performance (Johnson and Johnson, 1993). Lecture and discussion were balanced to provide more opportunity for the development of higher-order cognitive skills (Pascarella and Terenzini, 1994). The program focused on students' learning, not on the professors' teaching.

The highest response on the fourteen-question Graduation Survey was to the statement "The dialogue and collaboration with fellow candidates enhanced my learning." Eighty-eight percent of respondents said they strongly agreed this statement; the remaining twelve- percent agreed. Clearly, students appreciated the opportunity to work and learn in an environment of trust and collaboration. In their meta-analysis of 120 studies, Johnson and Johnson (1993b) found that student satisfaction with the learning experience was significantly greater in classrooms in which cooperative learning strategies were used. Commenting on her experience, one student stated, "My work groups were very dynamic. I was forced to think, to express my thoughts, to defend my position. My cohort wouldn't let me relax. It was the dialogue and group work, more than anything, that helped me learn."

This satisfaction with cooperative learning strategies may be accounted for by a number of factors. For example, women tend to appreciate relational learning environments (Gilligan, 1982), and approximately 75 percent of the M.Ed. program's clientele were women. Another factor might have been that the program was designed

for experienced educators and over 80 percent of program participants were elementary teachers. Through interview responses it was clear that elementary teachers tended to enjoy the cooperative coursework, which reflected activities they initiated in their P-6 classrooms. One student stated, "The group work is a delight. I do it with my third graders. Now I have a chance to do it with peers. And I find out it really does work!" Secondary school teachers tended to be less enthusiastic: "This group stuff is okay for elementary teachers. They do this cute stuff in their classrooms. But I teach chemistry to highschoolers. I'm not interested in cutesy stuff."

To accommodate in-class cooperative learning strategies, the Saturday 8Am to 5PM workshop format was developed. Although an overwhelming percentage of students appreciated the collaboration and dialogue afforded by the workshop format, fewer students reported this format enhanced their learning. Sixty-seven percent of respondents strongly agreed that the Saturday format helped them learn. As one student reported, "It's against my nature to enjoy working on Saturday!" Another said, "I can't honestly say the workshop format enhanced my learning. Eight to five is a long time. But I can't think of a better time, either. And it did mean we had time for in-class group work and discussion, which was great." The focus of interview responses was more on the convenience of a Saturday class rather than on the learning benefits received from an eight-hour block of instructional time.

Also to accommodate in-class cooperative learning strategies, cohort size was held between 14 and 18 members. Survey responses to the appropriateness of the cohort size varied more than any other question. Statements such as, "My cohort was the perfect size - 15 people" and "My cohort was too small, too restricting" and "My cohort was way

too big. I never felt like I could get a word in edgewise!" also illustrated the response spectrum.

This variation in responses may be due more to instructors' facilitation skills than to class size. Instructors experienced with group facilitation can effectively manage constructive cooperative activities with any size group (Pascarella and Terenzini, 1994). They can also positively influence the development of productive, working relationships among students. Many interview responses were directed more to the instructor's inability to effectively use the class size to his or her instructional advantage. For instance, one student complained, "My teacher seemed overwhelmed with leading our class of 16 in our group work. So, for us, we felt the class was too large." This quote highlights the need for adequate and systematic training for instructors in the effective use of cooperative learning strategies.

Variation in the quality of classroom facilities also may have impacted responses to the question of class size. Cohorts in this M.Ed. program are formed and taught throughout the state. Program facilities include high schools, hotels, and community centers. Size and layout of room, computer accessibility, and climate factors such as lighting and temperature all contribute to a sense of appropriate and effective class size.

Another aspect of cooperative learning that required instructor expertise was dealing with dysfunctional cohorts and work groups. Productive cooperative learning groups do not occur automatically. They require careful structuring and vigilant maintenance. Instructor training is also required to establish and proactively maintain healthy work relationships within cohorts and cooperative work groups.

A substantial body of evidence exists to suggest that the greater a student's involvement in academic work, the greater his or her degree of cognitive and affective growth (Pascarella and Terenzini, 1994). The primary purpose for incorporating cooperative learning strategies in this graduate education setting was to involve students in academic work, thereby enhancing their cognitive and affective growth.

Learning has both cognitive and affective components, with the latter providing the interpretive framework for the former (Billson and Tiberius, 1994). That the classroom is an emotional as well as intellectual setting influenced the educational design decisions of this program's developers. Cooperative learning strategies were selected as important instructional design components because of their potential for integrating the affective and cognitive dimensions of learning to enhance growth.

Understanding that learning does not just happen by randomly assigning students to work groups (Johnson and Johnson, 1994), developers intentionally structured cooperation among students. Cooperative work groups were to have a clear sense of positive interdependence. That is, members were expected to promote each other's learning and success. Also, they were taught to hold each other accountable and use interpersonal and group skills needed for a successful cooperative effort. Cooperative group work in this setting was intentionally designed to contribute to the cognitive and affective growth and development of program participants.

A research question that directed this study focused on students' affective growth:

- *In what ways did this M.Ed. program's learning experiences enhance affective growth?*

The cooperative learning strategies in this M.Ed. program were designed to support students' affective development. Student responses on the Graduation Survey illustrated the effectiveness of the program's design in promoting their affective growth. Sixty-seven percent of respondents strongly agreed and 30 percent agreed that the M.Ed. program helped to increase their self-confidence as a teacher and their desire for lifelong learning. Eighty percent strongly agreed and 20 percent agreed that, through the M.Ed. program, they gained personal satisfaction and growth.

Interview evidence supported survey percentages. One student stated, "My work groups, my cohort - they were responsible for challenging me mentally, while reminding me of their support. Without their confidence, my confidence would have failed." Another said, "I feel that now I can tackle anything, and it feels wonderful. If I can get my masters in a program like this - so concentrated and demanding - I can do anything!"

Students' employers also confirmed affective growth, as reported on the Administrator Survey. Employers reported a significant positive change in integrity, honesty, confidence and professional dispositions of their employees after completing the M.Ed. program. Interestingly, employers gave highest ratings to their employees in the affective areas of integrity, honesty, and confidence both before the students' matriculation and after their graduation.

It may be that this type of private, non-traditional program tends to attract students perceived as being of high moral character. It also may be that school administrators are predisposed to view their staff members as having positive attitudes and values. Another explanation for high affective ratings by employers may be that judgments of values are more easily arrived at and committed to than judgments of

professional knowledge and skill. Interview evidence from administrators would help explain the tendency toward high affective ratings on the Administrator Survey.

A large body of literature supports the results of this study, which illustrate the effectiveness of cooperative work for promoting affective growth. Johnson, Johnson and Smith (1994) concluded that the cooperative work group powerfully influenced students' academic efforts, their growth in psychological adjustment and social competence, and their development of caring, committed relationships. They stated, "Feeling successful, appreciated, and respected builds commitment to learning, enthusiasm about working in cooperative groups, and a sense of self-efficacy in terms of mastering the subject matter" (p.323).

A commitment to learning and a mastery of the subject matter are the traditional goals of higher education. To achieve these educational goals, instructors must choose instructional strategies that encourage, even force, students to think critically. These strategies may include student discussions, Socratic dialogue, student presentations, exhibits, and demonstrations - any experience that stimulates curiosity, thought and involvement. A research question that directed this study focused on students' cognitive growth:

- *In what ways did this M.Ed. program's learning experiences enhance cognitive growth?*

Astin's Theory of Student Involvement states that the student's "amount of learning is directly proportional to the quality and quantity of [his or her] involvement" in the academic setting (1984, p. 136). Similarly, evidence reported by Pascarella and

Terenzini (1994) suggests that the greater the proportion of time in which the student is engaged in learning activities (such as discussion, answering questions, cooperative work group participation), the greater the level of cognitive growth. Chickering and Gamson (1991) conclude that students learn most effectively when the classroom culture includes activity, cooperation, diversity, interaction and responsibility.

According to Vygotsky (1978) students are capable of performing at higher intellectual levels when asked to work in cooperative situations than when asked to work individually. Bruner (1985) contends that cooperative learning methods improve problem-solving strategies because students are confronted with different interpretations of a given situation. Cooperative learning strategies make it possible for the learner to internalize both external knowledge and critical thinking skills and to convert them into tools for intellectual functioning.

A primary purpose for incorporating cooperative learning strategies in this graduate education setting was to involve students in academic work, thereby enhancing their cognitive growth. Responses to the Graduation Survey indicate that cognitive growth did occur for graduates of this M.Ed. program.

Students reported growth in their abilities to demonstrate greater instructional effectiveness, to effectively manage classroom learning, and to be a more reflective practitioner. Overall, these self-reports were split fairly evenly between "agree" and "strongly agree." This split may indicate a lack of students' confidence in their ability to self-assess their cognitive growth. It may also be a reflection of the expression, "The more you know, the more you know you don't know." Students' interview comments support this contention: "I thought I was a great teacher. Thought I knew all there was to

know. Then I got in my cohort and, Wham! I saw how little I really knew." Another student stated, "When I think about how much I have learned and grown, I think of others in my group who are so far ahead of me, so much more experienced. Sometimes it's hard to see myself - my talents, my knowledge - clearly."

It is interesting to note that responses reporting students' cognitive growth were considerably lower than responses reporting affective growth. Though the overall "agree" response remained the same, more respondents strongly agreed with statements regarding affective growth. Cognitive growth was reported with more moderation.

This may be an indication of the difficulty of self-assessing growth in knowledge and skill. The difference may also reflect the genuine enjoyment experienced by the students in this non-traditional M.Ed. program. Many interviewed students reported, "I love this program" and "What fun I have had!" and "I tell everyone I know - get your masters from this program. It's wonderful!" The evidence clearly indicates student enjoyment of, and satisfaction with, the program.

Administrator Survey responses indicated cognitive growth in M.Ed. graduates. Before entering the program, students were rated lowest by their employers in the cognitive areas of research and leadership skills, and knowledge and skill in teaching diverse learning styles, and using varied resources including technology. Students' highest employer ratings in areas of cognitive growth were for their skills in teaching and in their knowledge and skill in planning, teaching, and assessing lessons.

After completing the program, employers' ratings in all students' cognitive areas rose. Employers again rated students' highest in teaching skill and gave high ratings for

students' knowledge and ability to use varied resources, methods and technology. Ratings for skills in research and leadership remained low.

The differences between the "before" and "after" employer ratings of students all indicated a significant difference ($p<.05$). Assuming that a greater change in ratings indicated greater perceived growth, employers observed the greatest growth in students' knowledge and ability to use varied resources, methods, and technology. A number of student interview responses reflected this growth, as in this student's statement: "The most helpful learning time for me was in our work groups, when we swapped ideas on how to teach this and that, and how to use our computers to present material and to involve our kids."

Other reported areas of cognitive growth were in the ability to improve practice in classroom and schools, in leadership effectiveness, and in the knowledge and skill in teaching diverse learning styles and abilities. It is interesting to note that, although growth was reported in the ability to teach students with diverse learning styles and abilities, little growth was reported in the ability to teach students from diverse cultural backgrounds.

In this area - the knowledge and skill in teaching students from diverse cultural backgrounds - students were rated relatively low by administrators both before and after their participation in the M.Ed. program. The "before" rating may be the result of students' lack of previous experience or growth opportunities in the area of multicultural education. The "after" rating is clearly a reflection of inadequate multicultural educational opportunities in the M.Ed. program. This M.Ed. program was designed around cooperative learning strategies. To provide effective multicultural experiences

and educational opportunities in this format, each cohort should be culturally diverse. Unfortunately, candidates for graduate degrees tend to be white, middle class professionals. As of the spring of 1999, this M.Ed. program was 84% White, 13% African-American, and 1% Hispanic (Tweedell, 1999). Clearly program designers were challenged to provide a substantive, relevant and effective multicultural education experience to its students.

A primary purpose for incorporating cooperative learning strategies in this M.Ed. program was to involve students in academic work, thereby enhancing their cognitive growth. Responses to both the Graduation Survey and Administrator Survey indicated that cognitive growth did occur for graduates of this M.Ed. program. Students reported growth in their abilities to demonstrate greater instructional effectiveness, to effectively manage classroom learning, and to be a more reflective practitioner. Administrators reported employees' growth in their abilities to use varied resources, methods and technology and in their teaching skills.

Implications and Conclusion

The purpose of this study was to explore the effectiveness of cooperative learning strategies in promoting the affective and cognitive growth of adult learners by describing and analyzing student and employer responses to a graduate level teacher education program. This Master of Education program was designed to maximize students' affective and cognitive growth through their involvement in cooperative learning strategies. Studies have shown that cooperative learning strategies enhance student satisfaction with the learning experience and promote academic and social growth (MIS Quarterly, 1994). It was intended that this study would help to clarify the effectiveness of cooperative learning strategies in promoting adult learners' growth.

Responses to the Graduation Survey and the Administrative Survey as well as the focus group interview questions support the conclusion that cooperative learning strategies in this M.Ed. program contributed to learners' affective and cognitive growth. Evidence illustrated that the cooperative learning groups in this setting provided students with opportunities to share through discussions and mutual problem solving, to receive interpersonal feedback on performance, and to provide social support and encouragement for one another. Growth was encouraged by cohorts and work group members holding one another accountable to learn the knowledge, skills and dispositions expected of program participants.

Several trends were evident in the survey and interview responses. It was clear from study evidence that training for instructors and students would be helpful regarding the purpose for incorporating cooperative learning strategies in the classroom.

Understanding how to productively structure and benefit from group work would increase effective use and participation in such cooperative learning opportunities.

Individual work must not be neglected in a primarily cooperative learning environment. Johnson, Johnson and Smith stated the purpose of cooperative learning groups "is to make each member a stronger individual in his or her own right" (1994, p. 320). Individual accountability and personal mastery of course material are important educational goals and must not be neglected. Assessment measures in the classroom must reflect the importance placed upon both group and individual work.

Strongly positive survey and interview responses were collected from women. This trend was supported by research literature on gender-related learning characteristics. Programs that attract high numbers of women, such as this non-traditional M.Ed. program, are well suited to the productive use of cooperative learning strategies.

Supporters of cooperative learning claim that the active exchange of ideas within small groups increases interest among group members and promotes individual growth and development. There is persuasive evidence that cooperative learning groups achieve at higher levels of thought and retain information longer than students working as individuals. In cooperative learning groups, members actively engage in discussions, hold each other accountable for learning, and develop broad affective and cognitive skills. In this adult education setting, cooperative learning strategies contributed importantly to the affective and cognitive development of program participants.

References

Astin, A. (1984). Achieving educational excellence: A critical assessment of priorities and practices in higher education. San Francisco: Jossey-Bass.

Billson, J. & Tiberius, R. (1994). Effective social arrangements for teaching and learning. In K. Feldman & K. Paulsen (Eds.), Teaching and learning in the college classroom (pp. 283-300). ASHE Reader Series, Needham Heights, MA: Simon and Schuster.

Bruner, J. (1985). An historical and conceptual perspective. Culture, communication and cognition: Vygotskian perspectives, pp. 23-34. London: Cambridge University Press.

Chickering, A. & Gamson, Z. (1991). Applying the seven principles for good practice in undergraduate education. New Directions for Teaching and Learning. No. 47. San Francisco: Jossey-Bass.

Elbow, P. (1986). Embracing contraries: Explorations in Learning and Teaching. New York: Oxford University Press.

Gilligan, C. (1982). In a different voice: Psychological theory and women's development. Cambridge, MA: Harvard University Press.

Gokhale, A. (1995). Collaborative learning enhances critical thinking. Journal of Technology Education, 7(1).

Houle, C. (1996). The design of education, 2nd edition. San Francisco: Jossey-Bass.

Imel, S. (1995). Teaching adults: Is it different? (ERIC Document Reproduction Service No. ED 381 690)

Johnson, D. & Johnson, R. (1994). Learning together and alone: Cooperative, competitive, & individualistic (4th ed.). Boston: Allyn and Bacon.

Johnson, D. & Johnson, R. (1993a). Cooperative, competitive, and individualistic procedures for educating adults: A comparative analysis. University of Minnesota, Cooperative Learning Center (submitted for publication).

Johnson, D. & Johnson, R. (1993b). What we know about cooperative learning at the college level. Cooperative Learning, 13(3), IASCE.

Johnson, D., Johnson, R., & Maruyama, G. (1983). Interdependence and interpersonal attraction among heterogeneous individuals: A theoretical formulation and a meta-analysis of the research. Review of Educational Research, 53, pp. 5-54.

Jones, J. (1989). Students' ratings of teacher personality and teaching competence. Higher Education, 18, pp.551-558.

Knowles, M. (1980). The modern practice of adult education: From pedagogy to andragogy, 2nd edition. Englewood Cliffs, NJ: Cambridge Adult Education.

Knowles, M. (1990). The adult learner: A neglected species. Houston: Gulf Publishing.

Kohn, A. (1986). No contest: The case against competition. Boston: Houghton Mifflin.

Magolda, M. (1992). Knowing and reasoning in college: Gender related patterns in students' intellectual development. San Francisco: Jossey-Bass.

Maher, F. & Tetreault, M. (1994). The feminist classroom. New York: Basic Books.

Merriam, S. & Cafarella, R. (1991). Learning in adulthood. San Francisco: Jossey-Bass.

Mezirow, J. (1991). Transformative dimensions of adult learning. San Francisco: Jossey-Bass.

Millis,B. & Cottell, P. (1998). Cooperative learning for higher education faculty. Phoenix: Oryx Press.

MIS Quarterly, June 1994. http://www.misq.org

Pascarella, E. & Terenzini, P. (1994). How college affects students. In K. Feldman & K. Paulsen (Eds.), Teaching and learning in the college classroom (pp. 577-595). ASHE Reader Series, Needham Heights, MA: Simon and Schuster.

Stein, D. (1998). Situated learning in adult education. (ERIC Document Reproduction Service No. ED 418 250)

Totten, S., Sills, T., Digby, A., & Russ, P. (1991). Cooperative learning: A guide to research. New York: Garland.

Tweedell, C. (1999). The theory and practice of adult education: A rationale for the APS model. (Unpublished manuscript)

Vygotsky, L. (1978). Mind in society: The development of higher mental process. Cambridge, MA: Harvard University Press.